Suite 1000
1120 20th Street N.W.
Washington, DC 20036
202 457-3810

September 15, 1997

Mr. William F. Caton
Office of the Secretary
Federal Communications Commission
1919 M. St., NW, Room 222
Washington, D.C. 20554

RE: Hatfield Sponsors' Submission Pursuant to the Commission's Request for a Response to Items Recommended in its Public Notice Guidance on Switching, Interoffice Trunking, Signaling, and Local Tandem Investment in Universal Service Cost Models

CC Docket No. 96-45
CC Docket No. 97-160

Dear Mr. Caton,

On September 3, 1997, the Commission released a Public Notice entitled, "Guidance to Proponents of Cost Models in Universal Service Proceeding: Switching, Interoffice Trunking, Signaling, and Local Tandem Investment" (DA 97-1912). In the Public Notice, the Commission requested model proponents to submit a letter providing:

1) a list of the items discussed in the Notice with which their model already is in conformity, and a description of how their model is in conformity with those items, and;

2) a listing of the items with which their model is not yet in conformity, and a schedule for delivery of a revised model platform incorporating the recommendations cited in the Notice.

The attached document is being submitted by AT&T Corp. and MCI Telecommunications Corporation on behalf of the Hatfield Model in response to the Commission's request.

An original and three copies of this letter are being submitted to the Secretary of the FCC. Seven copies are being submitted to Chuck Keller of the

Universal Service Branch, and copies are being provided to Glenn Brown of US West and Warren Hannah of Sprint as representatives of the BCPM.

Sincerely,

Richard N. Clarke

Richard N. Clarke

Attachment

cc: Chuck Keller (7 copies)

Sheryl Todd	R. Loube	N. Wales	E. Hoffnar	A. Bush
W. Sharkey	B. Wimmer	B. Clopton	W. Herriman	M. Kennet

State Staff Service List
Glenn Brown - US West
Warren Hannah - Sprint

Hatfield Sponsors' Submission Pursuant to the Commission's Request for a Response to Items Recommended in its Public Notice Guidance on Switching, Interoffice Trunking, Signaling, and Local Tandem Investment in Universal Service Cost Models

I. Switching

A. Mix of Host, Stand-Alone, and Remote Switches

1. *Items in Conformity*

The Hatfield Model 4.0 engineers local networks to contain an efficient mix of host, remote, or stand-alone switches; but identifications of switch type are not made on a wire center-by-wire center basis.

2. *Items Not Yet in Conformity and Compliance Schedule*

The Hatfield Model 4.0 does not explicitly identify its individual wire centers as housing host, remote, or stand-alone switches. The next release of the model will permit individual wire center locations to be designated as housing a host switch (with designation of its subtending remotes), a remote switching module (with designation of its host), or a stand-alone switch. These modifications will be available by November 14, 1997.

B. Switch Costs

1. *Items in Conformity*

Because the Hatfield Model 4.0 uses switching cost curves that have been created by averaging appropriately costs over the mix of host, remote, or stand-alone switches currently being installed by the LECs, it captures the correct network-average cost of switching. Furthermore, because the Hatfield Model 4.0 specifies and adheres to multiple capacity requirements (e.g., line and trunk limits, administrative fill, busy hour CCS, busy hour call attempts, processor capacity, feature demand, etc.) on an individual switch basis, its switch cost calculations

are already tailored to the specific characteristics of each individual switch.

2. *Items Not Yet in Conformity and Compliance Schedule*

Because the Hatfield Model 4.0 uses a single curve (one for large LECs, and a second for small LECs) to represent switching costs across the appropriate mix of host, remote, or stand-alone switches, it is not currently in compliance with the Commission's request for switch costs to be stated separately for each switch type. The next release of the model will estimate switching investment costs using separate curves to represent these costs for host, remote, and stand-alone switches. Separate families of curves will be developed for large and small LECs. Because it is likely that extra costs (above stand-alone switch costs) will be incurred at host switches in order to support their subtending remotes, the Hatfield Model will include a facility to ensure that these costs may be shared flexibly and appropriately among all the wire centers covered by these host-remote arrangements. This structure will continue to allow switch cost calculations to be tailored to the specific characteristics of each individual switch. All required modifications to the model will be available by November 14, 1997.

C. Capacity Constraints

1. *Items in Conformity*

The Hatfield Model 4.0 is already in compliance with each of these requirements. The model places additional switches in wire centers if otherwise any capacity limit would be exceeded. Its algorithms base this determination on (i) line and trunk limits; (ii) busy hour call attempts (BHCA); (iii) busy hour traffic (BHCCS); (iv) maximum administrative fill; and (v) feature processor loads. Furthermore, offered traffic loads (by BHCA, BHCCS and feature demand per line) are assumed to vary flexibly across residence lines and business lines, and each wire center's switches are engineered to handle the loads implied by the mix of residence and business lines that the wire center serves.

2. *Items Not Yet in Conformity and Compliance Schedule*

None, other than for specifying these capacity limits separately for switches that are hosts, remotes or stand-alones.

D. Percent of Switch Assigned to Port and to Provision of Universal Service

1. *Items in Conformity*

The Hatfield Model 4.0 is in compliance because it assigns only a portion of total switch costs to port and universal service. The model assigns 30% of total switch costs to line port-related expenses. Because these expenses are nontraffic-sensitive they are assigned to universal service. The remaining 70% of costs (which include trunk port costs), are calculated as usage costs. The portion of usage costs assigned to universal service is determined by the percentage of total switching minutes that are due to the provision of supported basic local service functions.

2. *Items Not Yet in Conformity and Compliance Schedule*

None.

II. Interoffice Trunking, Signaling, and Local Tandem Investment

A. Design of the Interoffice Network

1. *Items in Conformity*

Currently, the Hatfield Model 4.0 engineers interoffice trunking, signaling and tandem switching to serve all required loads of each network modeled. All wire centers serving 5000 or more lines are connected using self-healing SONET fiber ring architectures that provide route diverse redundancy. Wire centers serving less than 5000 lines are engineered with fiber interoffice facilities sufficient to reach all the way to the nearest tandem switch. Because it is likely that these small wire centers will actually connect to a large wire center that is closer than the tandem wire center, this may represent an over-engineering of facilities. Requirements for interoffice fiber, photonics, electronics and cross-connect systems are calculated after separate derivations of busy hour switched and special access demand for direct trunks (end office switch to end office switch), common trunks (end office switch to tandem switch),

and dedicated trunks (end office switch to off-network node, including entrance facilities).

2. *Items Not Yet in Conformity and Compliance Schedule*

Because the Hatfield Model 4.0 does not identify the type of switch (host, remote, stand-alone) that is placed in a wire center, the interoffice network that it engineers, while adequate as a whole, may not match the needs of a particular wire center (e.g., the Hatfield Model 4.0 engineers full SS7 signaling capability to each wire center, but a wire center housing a remote switching module does not need a direct link into the signaling network because all of its signaling needs are handled by its host). The next release of the Hatfield Model will ensure that the interoffice network engineered to each wire center matches exactly the needs of that wire center based both on its traffic demand and its switch type. To ensure that all customers receive an appropriate level of service protection, the next release of the Hatfield Model will allow the user flexibly to ensure diverse ring routing between all wire centers of a specified line size or higher. All required modifications to the model will be available by November 14, 1997.

B. Interoffice Cost Attributable to Providing Supported Services

1. *Items in Conformity*

The Hatfield Model 4.0 is in compliance will all of these requirements. The total required investments in interoffice fiber, photonics, electronics and cross-connect systems are calculated only after separate derivations of busy hour switched and special access demand for direct trunks (end office switch to end office switch), common trunks (end office switch to tandem switch), and dedicated trunks (end office switch to off-network node, including entrance facilities). The switched services portions of these costs assigned to universal service are then those that serve the local switched demand of supported lines – based flexibly on the relative number of minutes demanded for supported local usage versus toll or access usage. Similarly, the total requirements for signaling and tandem facilities are also calculated based the sum of switched local, access and toll demands – with flexibly varying usage of signaling and tandem resources depending on the type of switched service examined. The portions of these costs

assigned to universal service are those that serve the local switched demand of supported lines.

2. *Items Not Yet in Conformity and Compliance Schedule*

None.